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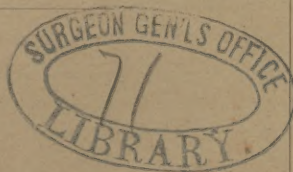
ON

PAROXYSMAL FEVER—NOT MALARIAL.

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University of Pennsylvania. Pathologist to the
Presbyterian Hospital.

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ON PAROXYSMAL FEVER—NOT MALARIAL.

Read March 26, 1884.

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THAT non-malarial intermitting fever is of frequent occurrence few will deny. Such cases have come to the writer's notice so often, that, especially as but little can be found in reference to this subject in medical literature, arranged in a systematic manner, he has deemed it of the highest practical importance to record his observations, for the purpose of emphasizing the value of distinguishing these two forms of intermitting fever. In addition to the hurried narration of illustrative cases, a little time will be taken for the consideration of the mode of recognition of the many sources of origin of paroxysmal fever, and a moment given to the mechanism of fever. It will not be out of place, however, to make a brief reference to the writings of others in this connection, and first to that of the late Dr. Murchison.

In a most instructive clinical lecture,* he called attention to all the forms of paroxysmal fever, giving twelve varieties, viz. :
 1. Malarious intermitting fever. 2. Certain cases of typhoid fever.
 3. Certain cases of relapsing fever. 4. Pyæmia. 5. Fever from pent-up pus. 6. Fever from ulcerative endocarditis, with or without embolism. 7. Tubercular fever. 8. Fever from lymphadenoma. 9. Syphilitic fever. 10. Urinary intermitting fever.
 11. Hepatic intermitting fever. 12. Intermitting fever from morphia.

In addition to examples under each division, he pointed out the clinical features and points of distinction in such detail that it would be supererogatory to enter upon such lines, save in the broadest manner, in this paper.

In the following pages, therefore, cases illustrating the second, fifth, sixth, seventh, and eleventh classes, respectively, of the above, will be recorded, and some new classes will be added, embracing cases of paroxysmal fever due to gastro-duodenal and pulmonary catarrh, to pent-up serum, to forming pus in a confined space.

* The causes of intermitting or paroxysmal pyrexia, and on the differential characters of its several varieties. *Lancet*, May 3, 1879.



Since this paper has been in preparation, a volume of the latest St. Thomas Hospital Reports (vol. xii, '81) came into the writer's hands. Of the many able articles contained therein, there is one by Dr. Ord entitled, "On some cases of Pyrexiaë simulating ague." He records a case of ulcerative endocarditis, and one of jaundice with obstruction attended by intermitting fever. Similar cases are detailed below, and hence it will not be necessary to more than refer to them. Cases III and IV of his list are very interesting, and worth repeating in abstract.

CASE III.—Female, æt. 58. Most of life in Mauritius. After returning to England suffered from what was called AGUE—shiverings, heats and sweatings at irregular intervals. At first no pain, but finally increasingly severe pain, attended with vomiting, was felt in the left iliac region. The symptoms repeatedly recurred for months and were regarded as outbreaks of latent ague acquired abroad. Treatment by quinia and arsenic. She finally, after a severe paroxysm, passed a stone the size of a bean from her bladder. Instant relief followed and six months passed away (to time of writing) without any return of fever or sweating.

Case IV is more remarkable, and for the possibility of its like appearing to us, it should be kept in mind.

CASE IV.—A man, æt. 30, never in the tropics, had daily attacks of high temperature, with shivering and sweating. He was sallow, worn and emaciated. His liver was enlarged; his spleen not. He had syphilis. The fever would be reduced by quinia, but only for a time. Thirty grains of iodide of potassium daily cured him, the intermitting fever having been considered by Jenner, in consultation, a manifestation of syphilis.

I. The temperature curve of typhoid fever simulates intermittent fever almost always at some period of its course. During the first week of the disease it is a difficult matter to decide whether a true intermittent is present or not, while in the decline of the disease a distinctly intermitting type is generally recognized. During the period of convalescence one must be watchful that the transient fever which so frequently develops, may not be considered malarial. The temperature during the course of typhoid fever, and the convalescence from it, is, as Dr. Cayley puts it, *labile*. It rises and falls with only the slightest provocation, and frequently takes on an intermitting type.

The following is a rare case of typhoid fever, in which the temperature at the height of the disease was distinctly intermitting. Dying the sixth

day of observation, it was noted that four days before death the patient had daily a congestive chill, followed by a very high temperature. The temperature on the morning of the first chill was $101\frac{1}{3}^{\circ}$ (Fahr.), the evening $104\frac{2}{3}^{\circ}$. The morning temperatures thereafter were on the second, third, and fourth days, respectively, $96\frac{3}{5}^{\circ}$, $99\frac{2}{5}^{\circ}$ and $96\frac{1}{5}^{\circ}$, and on the corresponding evening hour $104\frac{3}{5}^{\circ}$, $105\frac{2}{5}^{\circ}$ and $106\frac{2}{5}^{\circ}$, the latter two hours prior to death. It was considered a case of congestive malarial fever. The autopsy revealed the lesions of typhoid fever about the twelfth day of the disease.

II. It is well known that the fever from pent-up pus is frequently, almost constantly, of an intermitting type. An empyema has frequently been overlooked on this account, but it has never fallen to the writer's lot to have a case that could not easily be recognized. It was different in other cases of deep abscesses, however, and notably in a case—the true nature of which, Murchison says, is almost always overlooked—a case of hepatic abscess.*

The patient, a male, 39 years old, had lived on the Susquehanna, near Harrisburg, and had had chills and fever daily, three weeks prior to admission to the hospital. When admitted he did not seem very sick; he had walked to the hospital, and was permitted to be up each day. He was slightly emaciated and his liver was enlarged. He had daily paroxysms of fever, but the sweating stage continued all night, being more prolonged than in malarial intermittents. He died of hemorrhage from the bowels, one week after admission. The hemorrhage was found to be due to extensive ulceration of the large intestine, not suspected during life, on account of the occurrence of constipation. In addition, at the autopsy a large abscess in the right, and two small ones in the left lobe of the liver were found.

The following table exhibits the temperature record, and shows that we should have considered more seriously the low febrile range:—

		A. M.	P. M.
October	9,	99 $^{\circ}$	100 $^{\circ}$
"	10,	99 $^{\circ}$	101 $^{\circ}$
"	11,	99 $^{\circ}$	102 $\frac{3}{5}$ $^{\circ}$
"	12,	99 $^{\circ}$	101 $\frac{2}{5}$ $^{\circ}$
"	13,	99 $^{\circ}$	102 $^{\circ}$
"	14,	99 $\frac{3}{5}$ $^{\circ}$	101 $^{\circ}$
"	15,	98 $\frac{2}{5}$ $^{\circ}$	99 $^{\circ}$

The history of residence in a malarious locality, the temperature record, the absence of marked local symptoms and of intestinal

* Trans. Path. Soc., vol. viii.

disorders, favored malarial intermitting fever; the absence of enlarged spleen and the low temperature range negated that fever.

A child was seen with a history of daily febrile paroxysms, suspected to be malarial. The child had a severe paroxysmal cough, however, and was losing flesh and strength rapidly. An examination revealed the physical signs of circumscribed pulmonary consolidation, and the mother related the swallowing of a tack some time previous. Ten days afterwards, after a paroxysm of coughing, the tack and a large amount of pus were expectorated. The hectic soon lessened, the resulting cavity rapidly closed and the patient's health was restored. Another example of deep-seated abscess.

Abscesses developing near mucous surfaces are oftentimes very puzzling, at least in their early period.

An abscess of the prostate gland, in a man 48 years old, was one of the most difficult to discern. The patient had been sick a week, and when seen by the writer was in the midst of a febrile paroxysm. He had marked gastro-intestinal derangement, with dry, brown tongue, extreme malaise, daily febrile paroxysms, preceded by chilliness, and followed by profuse sweats, which continued in the night; in addition a dulness of intellect was observed. Six days after the first visit urinary tenesmus was noticed, subsequently rectal distress; an examination revealed a distinct prostatic abscess. It is of interest to note that fever did not occur after the abscess had fluctuated and hence that the forming stage of an abscess sometimes is attended with paroxysmal fever. The following exhibits the evening rise and morning fall, taken on different days:—

13, 4 P. M.,	.	.	102 $\frac{3}{5}$ °,
14, 4 P. M.,	.	.	99 $\frac{1}{5}$ ° , cinch. anticipated.
15, 12 M.,	.	.	102° , cinch. in lessened doses.
16, 12 M.,	.	*	98 $\frac{1}{2}$ ° , cinch. in increased doses.
17, 11 A. M.,	.	.	98° , cinch. in increased doses.
18, 5 P. M.,	.	.	103° , cinch. in again lessened doses.
19, 9 A. M.,	.	.	98 $\frac{1}{2}$ ° , . . . 5 P. M., 103°.

A febrile paroxysm was not detected after the 20th, and the table shows that cinchona merely prevented the paroxysms, but did not control them. The case was certainly difficult to analyze. The absence of enlarged spleen, the return of the fever after discontinuing cinchona, and the exhaustive sweats, repulsed the idea of malaria. The appearance of the tongue, the malaise, the headache, and the dulness of mind, with the fever range, made one consider typhoid rather seriously. On the sixth day (19th) after my first visit the local symptoms defined the lesion.

The febrile action then ceased, but the local inflammatory condition continued. It would probably explain the cessation of fever with complete suppuration to say that the soft tumor was not so much an irritant as the hard mass prior to pus formation.

Not only must pent-up or forming pus be considered factors in the causation of a periodical fever, but confined serum or forming serous exudation may undoubtedly give rise to intermitting fever. A case of subacute pleurisy with effusion, in which there occurred in the course of the disease distinct intermitting fever, came under the writer's notice. The usual evening exacerbations were present, but in the morning the temperature had fallen to, or almost to, normal. So marked were the paroxysms that an empyema was suspected, and doubt only removed by paracentesis proving the effusion to be serous. Two similar cases have come to his notice in private practice, both in children. The one, a lad 11 years old, had a dry cough for three weeks, with afternoon malaise and fever. The attendant ordered quinine with but little benefit. An examination of the lungs revealed a large collection of fluid in the left pleural sac, which rapidly disappeared under treatment. The temperature was recorded but once daily for obvious reasons, but at times in the mornings, again in the evening. Invariably an evening rise, a morning fall, were noted; but it never ranged higher than 102° , and there were no profuse sweats following. From the rapid disappearance of the fluid and the speedy renewal of the lad's health, the effusion was called serous and not purulent.

It may seem very trite to record such simple cases, but when, only lately, a child was seen in consultation, ill from a supposed meningitis, but truly so from an actual serous pleuritic effusion, one should feel that nothing is commonplace, and that it is the little things that need to be constantly dwelt upon. With this remark it may be stated that the fever of pneumonia may be intermitting. Later in the paper cases of catarrhal pneumonia will be referred to, but now the croupous variety is considered. Four cases, all in children, are recorded in the writer's note-book. Two of the cases were in his care from the first; two were attended by other physicians coming to him later.

In the first case he was egregiously deceived. The child, *æt.* 4, for five days was well to all intents and purposes, in the morning, eating and playing about with possibly only a slight cough. In the afternoon the temper-

ature would rise to a great height ($104\frac{2}{5}^{\circ}$), and the child would be sick until midnight. Repeated examinations of the lung could not detect a pneumonia until the fifth day. He was misled by the absence of dullness and of bronchial breathing, and the occurrence of tympany over the affected lung, as has been rarely noted.

Case number two, of the same character, occurred in a girl 7 years old. A chill, followed by high fever, with nausea and vomiting, substernal pain and cough, marked the onset. Seen the third day, her temperature in the evening was $104\frac{1}{5}^{\circ}$, with the above symptoms intensified, and a very rapid pulse (140) and rapid respiration (48). Both the fourth and fifth days the temperature was normal in the morning, high at night. On the fifth day bronchial breathing was first noted at the right base; on the seventh day, dullness; on the ninth day resolution began; after the fifth day the fever was continuous. It seemed like a case of retarded pneumonia—as regards physical signs—according to the observation of Dr. Andrew Clark.

Following the outline indicated by Murchison, the next form of intermitting fever he discusses is that due to endocarditis. The following case * of ulcerative endocarditis, the febrile range of which was characterized by daily paroxysms, is of interest. There was no difficulty in recognizing the nature of the affection.

TEMPERATURE RECORD.

	A. M.	P. M.
21,	1—	$103\frac{2}{5}^{\circ}$
22,	$100\frac{4}{5}^{\circ}$	$101\frac{3}{5}^{\circ}$
23,	$98\frac{2}{5}^{\circ}$	99°
24,	98°	$105\frac{2}{5}^{\circ}$
25,	$97\frac{1}{5}^{\circ}$	$103\frac{4}{5}^{\circ}$
26,	99°	103°
27,	99°	$100\frac{2}{5}^{\circ}$

The writer observed it during life, and deems it worthy of being recorded in this connection.

It would be a great surprise to know how many persons, in the latter stages of phthisis, when giving a history of their complaint, say that it was preceded by malaria or malaria broke them down. Over and over again is such a sad tale told us in the medical dispensary, and it is a matter of fact that not only do the laity, but many physicians consider early cases of phthisis as malarial in nature, entirely overlooking the local troubles. When speaking of catarrhal fever, the subject will be adverted to again, but the cases of tubercular origin are sometimes none the less examples

* Trans. College Physicians, Keating.

of intermitting fever, non-malarial. Repeatedly my notes show cases that had been treated for malaria in the early stages. Not only in the formation of tubercle in the lungs, but also in the brain, is the process accompanied by daily paroxysms of fever at times. One case that came under notice was particularly impressive.

The attending physician was going out of town for the summer, and left in the writer's care a little girl 5 years old, in the fourth week of her fatal illness. She had always been a bright child, of nervous temperament and of tubercular diathesis. The illness was of four weeks' duration, marked in the early period by failing in flesh and strength; in the latter period by a chill or chilliness every evening, followed by a night of restlessness and fever. She never complained of headache, nor did she vomit, while her bowels were regular. Eight days before the present attendant saw her, her physician visited her, and attributed the symptoms to malaria; quinine was used. Four days thereafter headache began. The day the writer saw her (fourth week), she had had a slight convulsion and other unmistakable evidences of tubercular meningitis, of which she died in seventy-two hours.

How terrible to be compelled to tell a fond mother the innocent malaria only simulated the baneful meningitis. The writer once made the mistake of attributing a periodical headache to malaria; tubercular meningitis was the cause of the pain. It is seen then, and is well known, that many manifestations of that disease are periodical.

The succeeding case of chronic hepatitis with enlargement illustrates that form of intermitting fever, which is hepatic in origin. The diagnosis was made without difficulty, especially the differentiating from intermittent fever of malarial origin. The following abstract of the history includes all the important points:—

George W., * æt. 43, German farmer, of Manayunk, contracted diarrhœa during the war, which has always shown some tendency to return. Has had malaria; probably has had syphilis; otherwise been very healthy. Family history good. Admitted September 2, 1877, with well-marked jaundice; emaciated, and presented the symptoms of itching, dark colored urine, languor and sleepiness, and a small, slow and feeble pulse.

The jaundice appeared gradually in February of 1877, preceded by several days of diarrhœa. Since then marked dyspeptic symptoms, relieved by attacks of diarrhœa; stools at times clay-colored, at times normal. Some œdema of feet, but ascites never detected. Oct. 2, liver from fourth interspace to two inches below margin on deep percussion, margin smooth

* Trans. Path. Soc., 1878.

and resisting; no pain or tenderness. Oct. 15 to 25, uncontrollable hic-cough. Extreme exhaustion, rapid emaciation, deepening jaundice, semi-typhoid state; death, Nov. 4. Autopsy revealed the diagnosis to be correct.

The temperature record is noted with the remarks of Dr. Guiteras, whose resident physician the writer was at the time, on its curious range, in order to associate the case with a paper on fevers.

					Morning.	Evening.
October	21,	.	.	.	100°	98°
"	22,	.	.	.	98°	103°
"	23,	.	.	.	95 ² / ₅ °	100°
"	24,	.	.	.	101 ² / ₅ °	96°
"	25,	.	.	.	98°	101°
"	26,	.	.	.	95°	94 ³ / ₅ °
"	27,	.	.	.	103°	98°
"	28,	.	.	.	95 ¹ / ₅ °	100°
"	29,	.	.	.	97°	98 ² / ₅ °
"	30,	.	.	.	97°	98°
"	31,	.	.	.	94 ² / ₅ °	96°
November	1,	.	.	.	99°	93°
"	2,	.	.	.	95°	96 ³ / ₅ °
"	3,	.	.	.	91 ² / ₅ °	91°

"I find that every third temperature is pretty regularly a high one, the fall being very great in the two intervening temperatures; so that the rise and fall do not present the usual relations to the morning and evening hours. The curious range of temperature may be due to an intermittent absorption of effete products from the liver, or an intermittent arrest of the oxygenating processes going on in the liver, an arrest that must influence the general temperature, if we remember that in health the temperature of the organ reaches 106°."

In another paper* of the writer may be found reported a case of primary cancer of the gall-bladder.

Early, in fact almost until death, the attending fever was thought to be of malarial origin. The writer, as well as others, made the mistake. Until a few months before her death the fever was distinctly intermitting, with chills; later it became remitting and then continuous. Although there were jaundice and occasional attacks of vomiting, there were no special evidences of localized disease. The spleen was enlarged, and so it was thought to be a miasmatic fever. The change in type, the extreme exhaustion and the emaciation caused this idea to be abandoned. Until death it was obscure. A sufficient cause for the temperature range was found at the autopsy in a suppurative inflammation of the bile ducts, and the healthy portion of a gall-bladder, the remainder of which was the seat of carcinoma. One can see now that more stress should have been laid on the occasional

* Path. Soc. Trans., Phila., '81.

vomiting, the slight hepatic tenderness, the previous history of biliary colic, the persistent and deepening jaundice, and the great emaciation, and thereby a diagnosis been made between miasmatic fever and suppurative fever.

Here will briefly be recorded two cases illustrative of the fever of hepatic origin, not because of one difficulty in their recognition, but because one of them, the first, had been treated for malaria.

This one was the case of M. Mc., æt. 50, who suffered at irregular intervals, often repeatedly in a week, with attacks of severe pain in the epigastrium accompanied by a chill and followed immediately by fever and sweat, and in a few days by jaundice. He died several months afterwards in the writer's care of obstructive jaundice from impacted calculus, after two of these attacks in succession.

When these attacks occurred, every day or every second day, it can be readily seen how a mistake in diagnosis could have been made. Attention to details, however, with the therapeutic test would have been good aid. The paroxysms, by the way, were no doubt due to the irritation of the discharging calculus. The other case was that of an impacted, possibly ulcerating biliary calculus. The history of the case, the jaundice and the local inflammatory changes prevented one from erring.

In addition to the preceding examples of paroxysmal fever, a series of cases will be adverted to which Murchison has not referred to in his lectures, and with the nature of which it is of the utmost importance to be perfectly familiar. Reference is made to catarrhal inflammations of pulmonary, the gastro-intestinal, and the genito-urinary mucous membranes, with secondary intermitting fever resulting therefrom. Especially important is it, for unless the fever is traced to its source, grave organic mischief will become so pronounced as to lead to disastrous consequences. Witness a phthisis following an overlooked bronchial catarrh.

It savors much of the teachings of Broussais, to say that catarrhs are the source of fevers, but there is no doubt that just so far as the philosophic Frenchman erred in that extreme, so do we at the present day err in the other, by attributing most fevers to a zymotic process. Prof. Pepper,* in a timely and instructive address, calls attention to these dangers: That fever is too often considered as due to a zymosis; that zymotic diseases are

* On some of the relations of catarrhal affections. Trans. Am. Med. Assoc., 1881.

of self-limited duration; hence that active treatment is of no avail and especially that the accompanying catarrhs are neglected. Further, on account of these beliefs, the catarrhal process that is often the cause of a fever is overlooked, and thus the commencement of serious local disease is not thwarted.

Reference was made, in another portion of the paper, to the frequency of assuming early tubercular disease of the lung accompanied by intermitting fever, to be due to a miasmatic fever. The following notes illustrate the clinical course of some cases of catarrhal disease of the air passages, which often are the forerunner of so-called catarrhal phthisis. Other examples have been noted, in which there has been only slight catarrhs, without hemorrhage, much cough or emaciation, with attendant fever, occurring in paroxysms.

One of the most typical cases of paroxysmal catarrhal fever came under observation in August, 1880, and was the first to lead to the investigation of this question.

A man, 40 years old, of previous good health and habits, of good family history, and residing in a healthy neighborhood, sought advice for "chills." Daily at 11 A. M. he would have a chill, followed by fever and sweat. The entire paroxysm continued until 6 P. M. His digestion was impaired, and his bowels were constipated. The usual treatment was employed. He reported twice that the chills had ceased to return at once when the medicine was finished. He also reported that his sweats continued throughout the night, and that he was losing flesh and strength. At the third visit he was much dissatisfied, for a former slight cough had grown more pronounced, he had bloody mucous expectoration, and the chills continued. Upon careful examination a distinct area of consolidation at the root of the right lung with attending blowing breathing, and some sub-crepitant rales were found. Active treatment was determined upon, and in six weeks the patient was cured. He has followed his occupation ever since (engineer), is heavier than he ever was, and in perfect health.

Further: A young miss of 20 years, the past winter, was conducted through an attack similar in many respects. Originating in a severe cold, with harassing cough, chest pain, no expectoration and with loss of appetite, nausea and constipation; she lost flesh, and had, the first two weeks of her illness, daily morning chilliness, fever in the afternoon (102°), followed by an exhaustive sweat. During this time the physical signs of a bronchitis were present, with marked localization of the inflammatory process at the right apex. A day of undue exposure and exertion was followed by a severe chill and rapid rise in temperature, with distinct evidence of catarrhal pneumonia at the location indicated above. Chills and fever daily, profuse sweats, emaciation and gastric derangement were prominent for two weeks.

The former symptoms then subsided, but it was fully two months before the lung cleared up, and the patient gained flesh and strength. The family and friends constantly reiterated their opinion that the attack was primarily malarial.

Probably the most difficult, the most occult form of paroxysmal fever of catarrhal origin to recognize, is the one due to that lesion of the intestinal tract. There are no physical signs to betray it, and generally the intestinal derangement is considered secondary to the febrile process. It seems impossible to distinguish the specific from the catarrhal form, save by the presence or absence of the enlarged spleen, the change in the urine of malarial subjects and of the blood when the malaria is chronic, especially when a recent writer tells us that epigastric pain, vomiting and constipation are symptomatic of malaria in children. The following record is a typical illustration of this variety, and is a most instructive and pertinent case:—

E. M., æt. 5. Inherits a tubercular diathesis from mother. During November and December of 1881 had no appetite, was obstinately constipated, and lost flesh. She became delicate and puny-looking. The latter part of December she was seen on account of the above symptoms and of an irregular fever. The course of the fever was at first difficult to determine, but finally it was found to be distinctly intermittent. She was visited at various hours of the day, and found that at 11 A. M., daily, she would be cold, shivering and begging for extra covering. Her extremities, nose and ears would be very cold, her lips bluish, and the features pinched. At the same time the pulse would be rapid and the temperature in the mouth 102° . In a half hour the exterior warmed, and very soon she would have high fever, the temperature rising to 103° – $103\frac{1}{2}^{\circ}$. The febrile stage lasted three or four hours, and was not followed by profuse perspiration. Save weak and without appetite, by night she would be perfectly well. Quinia was given in continuous doses at first, afterwards in doses to anticipate the paroxysm; but without any good effect. The paroxysms were lessened in severity only while the already poor appetite was made poorer and the digestion more impaired; for two weeks an anti-periodic treatment was continued, and at the same time laxatives were used to overcome the constipation; at this time (January, 1882) she was thin and worn, the paroxysms of fever were daily, the appetite was very poor, the breath offensive, the tongue covered on the dorsum with a yellow-white fur, pointed, and with no papillæ; vomiting occasionally occurred, and always some pain after eating; the bowels remained obstinately constipated. It seemed to me, after a time, the fever was a secondary matter, that the gastro-intestinal disorder was primary, and that such disorder was subordinate to the diathetic constitution. Hence she was placed on small doses ($\frac{1}{2}$ gr.) calomel

with bicarb. of soda (5 grs.) every three hours. In three days cod liver oil with syr. of the hypophosphite of lime was added to the treatment. At once she began to improve; her appetite first, then her bowels became more regular. In two weeks the child rapidly improved under this treatment, after being treated previously for more than two weeks for malaria. It may be added here that twice or three times E. became constipated with similar febrile symptoms noted above, and that the parents, without my advice, cured her with the cod liver oil mixture.

A case very similar to the above was also seen. It is useless to report the details of the case; remedies directed to the gastro-intestinal catarrh, with accompanying intermitting fever, effected the cure.

A case of stricture of the pylorus, in its course, at one time presented daily chills and fever. Quinia did not control the paroxysms. During the time of the fever, and for a week afterwards, the stools of the patient were composed of mucous or membranous casts of the intestinal canal or of a pultaceous mucoid discharge.

These cases incontestably prove the proposition that intermitting fever is often due to catarrhal inflammation of the intestines, and that remedies directed to this locality alone will cure the disease.

This clinical record will be closed by the report of an observation of a case, the nature of which is somewhat obscure. It is not given, therefore, without some misgiving. It appears that the only title that could be applied to it would be paroxysmal fever of neurotic or hysteroid origin.

The patient was 25 years old, of a rheumatic diathesis and nervous temperament. She presented a history of "chills and fever," recurring at irregular intervals for two years. The paroxysms were of the quotidian type and the attacks lasted one or two weeks. Considered to be malarious; quinia or cinchona was always given by her attendant, and the usual remedies for malarial toxæmia used, without cutting short or preventing the attacks. The writer attended her through two attacks. They were of the following nature: Preceded by dyspeptic symptoms for a few days, a violent chill attended the onset of the attack, accompanied by severe headache, with tender spots and one or more localized points of pain in the body. In one of the attacks the pain with the first chill was fixed at the end of the spine with exquisite tenderness; in another it was in the epigastrium. The chill was an hour in length and followed by fever. With the fever the face would flush, the eyes "burn," and the skin be hot and dry. The temperature would rise to 103° or more, the pulse be full, bounding, rapid. Evidences of gastric catarrh with constipation were also noted. During the paroxysm the most pronounced emotional disturbances were manifest, so that had fever been absent it would have been without difficulty considered a case of hysteria. A sweating stage of two hours followed the fever.

The paroxysms recurred daily for a week, but with the repetition of each one the pain would be seated in another portion of the body—in the occiput, the shoulder, or the knee-joints—while the emotional disturbances would be also present. The pain was described as unbearable, and could not be influenced by almost incredible doses of the usual anodynes. Quinia was given in enormous doses in the first attack, without any beneficial influence.

The fact that the paroxysms occurred towards night and that they were accompanied by hysterical symptoms of a high degree, the inutility of quinia and the absence of enlarged spleen rendered the opinion that the case was of neurotic origin, probable.

The second attack was very similar. Vomiting was, however, a more persistent symptom. The duration was about one week, and it appeared to yield to remedies addressed to the hysteria and the gastric irritability. The whole tenor of the patient's life has changed since then, so that for two years she has not had a return of the supposed malaria, notwithstanding she is exposed to the same malarious influences.

Time will not permit a review of the various affections in detail, in order to establish a differential diagnosis between these simulative disorders and a true intermittent. Any attempt at a positive diagnosis of paroxysmal fever, however, should not be made without keeping in mind the following proposition: In the first place, one would say that given a case with a chill and fever, a diagnosis of intermittent ought not be made from the nature of the first paroxysm, unless it be vital to do so, as in a pernicious intermittent. Then, if such a case is presented that yields but partially to anti-periodics, they should be discontinued and a fresh start in the diagnostic inquiry taken.

In order to fully establish a diagnosis a careful study of the antecedents of the patient should be made relative to previous health, habits, place of residence, and family history. Then, in favor of malarious intermittent, we should, after this study, expect a morning hour for the chill (Flint), the well-known changes in the composition of the urine, and if chronic, the enlarged spleen and the pigment granules in the blood. If with one or more of these favorable factors present we could exclude all possible source of organic disease, by an examination of each individual organ, the blood (leukæmia), the eye ground (tuberculosis), the lungs, liver and gastro-intestinal tract, we would be warranted in the diagnosis of malarial intermittent.

It seems, further, to be of value to note that emaciation of a high degree is more common in non-malarious intermittents.

The same may be said of exhaustion. The latter occurs to a certain degree, and is attended with a pronounced anæmia, so easily recognized as of malarial origin. Then, too, a long sweating stage and a low febrile range rather disprove the presence of the malarious influence.

Enlargement of the spleen is not to be considered, in acute intermittents, as of little moment. In a series of twelve cases of intermittent in children, eight presented the enlargement, which had subsided a year after the first examination.

There is but little doubt that fever is of neurotic origin, and the examples which have been recorded to-night more aptly illustrate this cause than any other class of cases. The profession is so thoroughly imbued, however, with the idea of no fever, unless a zymosis or blood-poisoning, that it is of practical value to refer to the mechanism of fever briefly. As shown by others, disastrous results oftentimes ensue by addressing means to the cure of a zymosis, or by passively allowing a febrile process to continue its supposed self-limited course, when actually a zymosis was not present, and remedies otherwise applied would have been beneficial. The reference to the mechanism, therefore, is to show that often fever is of a reflex origin due to peripheral irritation—a neurosis.

The element of intermittency itself is a powerful argument in favor of its neural origin. This is not the time to engage in philosophical speculation, or to demonstrate the relation of the fundamental principle of the rhythm of motion so grandly elaborated by Spencer; suffice it to say that to no other set of tissues or systems could we look to but the nervous system for an explanation of intermittency. Aside from this, however, in the masterly study in morbid and normal physiology by Wood, on the mechanism of fever, we find sufficient argument and proof "that a depressing poison or a depressing peripheral irritation acting upon the nervous system which regulates the production and dissipation of animal heat," causes fever.

Among the illustrations presented to-night, there are some which strongly indicate the reflex origin of fever from peripheral irritation; witness the case of vesical calculus or of gall-stone. By what other supposition could the phenomena be explained? Likewise, though with an element of doubt intermingled, in the cases of gastro-intestinal catarrh, the fever may be considered as

due to reflex processes. In the other cases the fever is, no doubt, due to the absorption of a poison which acts upon the nervous system, and as opposed to Charcot and Billroth, one would think that the phenomena of intermittency is due not to paroxysmal discharges of pus or poison into the blood, but to rhythmical responses of the nervous system to a constantly-acting poisoned blood.

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